WHAT IS CLAIMED IS:

1. A method for enhancing the resolution of black image regions rendered at a resolution of color image regions, the black image regions and color image regions being represented by pixels, the black image regions and color image regions having a first resolution, the first resolution being lower than a maximum black printing resolution of a printer, the method comprising:

generating black pixels and color pixels at said first resolution;

for each original pixel of the black image region having the first resolution,

multiplying said pixel in two dimensions to obtain a first array of pixels, so as to represent the original pixel by a plurality of target pixels in the first array;

selecting a plurality of neighboring pixels, said target pixels and neighboring pixels constituting a pixel window;

applying the pixels in the pixel window to a logic circuit having a plurality of logical conditions;

determining enhanced resolution pixels for the target pixels based on whether said pixel window meets a logical condition; and

printing said enhanced resolution pixels at a second resolution as well as said color pixels at said first resolution.

2. The method as recited in claim 1, the method further comprising:

forming a processed pixel image by repeating the selecting through the determining steps until all of the original pixels have been processed.

3. The method as recited in claim 1 wherein the first resolution is 300 dots per inch (dpi) and the second resolution is 600 dpi.

4. The method as recited in claim 1, further comprising empirically determining the logical conditions.

5. The method as recited in claim 1, wherein said step of printing further comprises printing black pixels rendered at the second resolution.

6. The method as recited in claim 1 wherein the pixel window has rows represented by bits equal to or less than a word size.

7. The method as recited in claim 1 wherein the pixels in the pixel window form a 13x13 pixel matrix.

8. An apparatus for enhancing the resolution of black image regions rendered at a resolution of color image regions, the black image regions and color image regions being represented by pixels, the black image regions and color image regions having a first resolution, the first resolution being lower than a maximum black printing resolution of a printer, the apparatus comprising:

an upscaling circuit for multiplying black pixels to form a first array of black pixels, said first array including a group of target pixels;

a logic circuit for receiving said target pixels and neighboring pixels, forming a window of pixels, said logic circuit applying logical conditions to said window of pixels and identifying enhanced resolution pixels for said group of target pixels; and

at least one printhead for printing said enhanced resolution pixels at a second resolution and color pixels at said first resolution.

9. The apparatus as recited in claim 8, wherein the logic circuit comprises a logic array.

10. The apparatus as recited in claim 8 wherein the first resolution is 300 dots per inch (dpi) and the second resolution is 600 dpi.

11. The apparatus as recited in claim 8 wherein the logical conditions are empirically derived.

12. A method for enhancing black image regions of a pixel field that are rendered at the same first resolution of color image regions, the method comprising:

separating black pixels from color pixels to form a black pixel field;

multiplying the number of pixels in the black pixel field to form a first pixel array;

forming a sub-array of the first pixel array, the sub-array including a target group of pixels;

applying the sub-array to a logic circuit identifying a plurality of logical conditions;

based on whether the sub-array meets a logical condition, modifying said target group of pixels to reduce jagged edges of said black image regions; and

printing the modified target group of pixels at an increased resolution and printing color pixels at said first resolution.

13. The method as recited in claim 12 wherein said multiplying is performed by upscaling.

14. The method of claim 13 wherein the initial resolution of the black pixel field is 300 dots per inch (dpi), and the resolution of the modified target pixels is 600 dpi.